



Ottawa Hull K1A 0G9

(21) (A1)	2,162,614
(22)	1995/11/10
(43)	1996/05/16

(51) Int.Cl. ⁶ H04N 7/08; H04N 7/173; H04M 11/00

(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) System and Method for Wireless Capture of Encoded Data Transmitted with a Television, Video or Audio Signal and Subsequent Initiation of a Transaction Using Such Data

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(30) (US) 339,538 1994/11/15

(57) 22 Claims

Notice: This application is as filed and may therefore contain an incomplete specification.



**SYSTEM AND METHOD FOR WIRELESS CAPTURE OF ENCODED DATA
TRANSMITTED WITH A TELEVISION, VIDEO OR AUDIO SIGNAL AND
SUBSEQUENT INITIATION OF A TRANSACTION USING SUCH DATA**

ABSTRACT

5 A device which can be portable and therefore used in conjunction with several
different data sources is arranged for wireless capture of encoded non-perceptible data
directly from a light emitting device, such as a television or other video and/or audio
output device. The data is part of the ordinary program displayed by the device and yet
10 indiscernible by a viewer or listener. The indiscernible data may be information needed to
order those services or products, including prices, delivery intervals, shipping details,
coupon offers, and so-on.. After capture, the device includes a memory arranged to store
the data for later use, and communications circuitry arranged to output at least portions of
the data (or data derived from the captured data) to a remote agent or device, such as via
15 a telephone call or a data transfer to a point of sale device. .

**SYSTEM AND METHOD FOR WIRELESS CAPTURE OF ENCODED DATA
TRANSMITTED WITH A TELEVISION, VIDEO OR AUDIO SIGNAL AND
SUBSEQUENT INITIATION OF A TRANSACTION USING SUCH DATA**

5 Field of the Invention

This invention relates to a device and a method for the wireless capture of encoded non-perceptible data from a light emitting device such as a television or other video and/or audio output device, and subsequent use of the captured data to initiate a transaction, such as placing a telephone call and transmitting a message to a remote agent or automated attendant, or delivering the data to a point of sale agent directly or indirectly via a telecommunications connection, or to operate another device.

Background of the Invention

In a copending application entitled "System and Method of Capturing Encoded Data Transmitted Over a Communications Network in a Video System" filed on behalf of Isenberg and Tuomenoksa on March 18, 1994, Serial No. 08/210802 and assigned to the same assignee as the present application, it was recognized that non-perceptible information can be encoded in a television program, captured in a "set top box", and thereafter used to make telephone calls. The set top box is an electrical device that is "hard-wired" directly in the circuit between the video services network and the television set (as a stand alone unit or alternatively as part of the television set itself) and thus, unfortunately, is not portable. Also, the set top box is dedicated to one particular television (or other video source) and thus cannot be shared among several sources. Finally, the user of the set top box may be uncertain as to the nature of the information captured therein.

Summary of the Invention

In accordance with our invention, a device which can be portable and therefore used in conjunction with several different data sources is arranged for wireless capture of encoded non-perceptible data directly from a light emitting device, such as a television or other video and/or audio output device. The data is part of the ordinary program displayed by the device and yet indiscernible by a viewer or listener. As an example, a television monitor may be located in a kiosk or other public area, and display a program advertising selected services and products. The indiscernible data may be information needed to order those services or products, including prices, delivery intervals, shipping details, coupon offers, and so-on.

Capture can be effected by decoding subliminally modulated video broadcast signals, in a manner suggested in U. S. Patent 4,807,031, issued on February 21, 1989, to R. S. Broughton, et al., the teachings of which are incorporated herein by reference. Alternatively, a modulated carrier, which, for example, can be an amplitude shift keyed (ASK) or frequency shift keyed (FSK) signal having its primary frequency components at a frequency (e.g. 25 kHz) not usually present in a conventional television signal, can be added only to the luminance component of a television signal, and the data can thereafter be captured using bandpass filtering and an ASK or FSK receiver. After capture, the device includes a memory arranged to store the data for later use, and communications circuitry arranged to output at least portions of the data (or data derived from the captured data) to a remote agent or device, such as via a telephone call or a data transfer to a point of sale device.

In accordance with the present invention, the encoded non-perceptible data includes associated dialing, routing, or identification information, so that other portions of the captured data can be transmitted to an appropriate final destination or device. In this context, the final destination can be (a) a remote location, such as a platform arranged to process and consummate transactions, or (b) a point of sale system or other device (e.g., TV, stereo, VCR Plus, smart mouse device, etc.). The other portions of the captured data that constitutes a payload to be communicated to the final destination or device, can, for example, be product or coupon information that is related to the display from which the non-perceptible data was captured, or programming or control data.

Further in accordance with the present invention, the capture device includes a built-in display, such as an LCD display, and the encoded non-perceptible data includes display information, so that at least portions of the captured data can be discerned by a user of the device, and the user can thus be kept informed as to the operation of the device. The memory and the communications circuitry in the capture device are advantageously arranged so that, in a transaction initiated by the device using captured information, a two-way dialog may be initiated between the user and an agent at a remote terminal or a POS system, and information may be transmitted to and stored in the device for later retrieval.

Brief Description of the Drawing

The present invention will be more fully appreciated by consideration of the following Detailed Description, which should be read in light of the accompanying drawing in which:

Fig. 1 is a schematic drawing of one embodiment of a system arranged in accordance with the present invention for wireless capture of encoded data transmitted with a television signal;

Fig. 2 is a block diagram illustrating the components of capture device 110 of Fig.

5 1;

Fig. 3 is a diagram illustrating the format of captured data; and

Fig. 4 is a flow diagram of the process by which data embedded in a subliminal visual or non-audible message is captured and used.

10 Detailed Description

Referring first to Fig. 1, there is shown a schematic drawing of one embodiment of the present invention arranged for the wireless capture of encoded non-perceptible data from a light emitting device such as television 101, and subsequent use of the captured data to initiate a transaction which might be handled by a person at an agent terminal 120, or a person at another terminal 121 that is supported by an interactive service platform 130.

A television signal is received by television 101 via over-the-air transmission, as from transmission tower 102 via a transmission link 103, or alternatively is supplied by a cable TV connection, or from a VCR/videotape. The video portion of the television signal is displayed on the picture tube or other visual display area 105 of a monitor, computer or a television 101, while the audio portion of the television signal is played through or by projected from speaker 106. Associated with the program that is seen and/or heard by a viewer/listener is non-discernible encoded data that is transmitted as part of the audio and/or video signal. For example, the program may be an advertisement for a service or product, and the indiscernible data may create a subliminal visual pattern on the visual display area, that when properly received and decoded, contains information needed to order those services or products, including prices, delivery intervals, shipping details, coupon offers, and so-on.

Encoding, transmission and decoding of non-discernible data may be accomplished as described in a patent application entitled "System and Method for Encoding Digital Information in a Television Signal" filed on behalf of T. Sizer and assigned to the same assignee as the present application, which co-pending application is incorporated herein by reference. Briefly, it was found using a spectrum analyzer on a typical video signal, that there are comparatively large frequency components at the line rate and at the frame rate and its harmonics, but that between these frequencies, there are other frequency bands in which little information is carried. One such frequency band is between 15 and 30 kHz.

By adding a low level carrier signal or tone at a frequency in this band, say 25kHz, the video image is not degraded, but a properly tuned decoder can receive and decode the encoded information. In this way, digital information can be subliminally inserted in a video signal by adding to the video signal an amplitude shift keyed (ASK) or frequency shift keyed (FSK) carrier signal, and the digital information can later be recovered using ASK or FSK decoding. Encoded data can also be inserted in a television signal and recovered by a receiver that responds to the picture displayed on the television, in the manner described in patent 4,807,031 cited above.

The program displayed on television 101 is sensed by a portable capture device 110, which is described in more detail in connection with Fig. 2. When the non-discernible encoded data is part of the video signal, such sensing takes the form of light from display area 105 being collected by an optical lens 117, while when the non-discernible encoded data is part of the audio signal, such sensing takes the form of sound from speaker 106 being collected by a microphone (211 in Fig. 2). In either event, there is a wireless communication of the information from television 101 to capture device 110 such that the encoded data is "viewed" or "heard" rather than being transmitted through a wired connection, or through a more conventional radio frequency communication.

In addition to receiving non-discernible encoded data, capture device 110 has the capability of (a) storing the encoded data, (b) transmitting (or otherwise outputting) the encoded data (or information retrieved using such data) to a remote location or device, and (c) displaying the encoded data to a user. The data may include information for initiating a transaction or originating a telephone call, as well as additional information (e.g., price and ordering information) associated with the television program being displayed on television 101. The remote location may be agent terminals 120 or 121, interactive service platform 130, or a point of sale system, and the communication between the capture device 110 and the remote location may be one-way or two-way.

In the case where encoded data is to be output from capture device 110 via a telephone call, the call may be initiated and transacted in one of several ways, as illustrated in Fig. 1. First, the data may be transmitted over a wireless link to an associated telephone base station 109 that is, in turn, connected to a telephone line 111 that is part of a telecommunications network 115. Communication between capture device 110 and base station 109 may be accomplished in a variety of ways; as an example, the same signaling and transmission can be used as is presently used in communication between a cordless telephone handset and its associated base station. Second, capture device 110 may be directly connected to a telephone line 112 through an interface that includes a standard telephone jack 114. Third, capture device 110 may include the functionality of a cellular

telephone, so that the data may be communicated to a remote location via a wireless call placed to a mobile telephone switching office (MTSO) 140, which is in turn connected to telecommunications network 115.

As explained more fully in connection with Fig. 2, capture device 110 may include a dual tone multi-frequency (DTMF) transceiver arranged to generate a series of audible tones. Accordingly, a fourth way to initiate a telephone call would apply portions of the data to the transmitter (tone generator) portion of the DTMF transceiver. Capture device 110 may then be placed in juxtaposition with the microphone portion of a conventional telephone handset, such that the audible tones generated in capture device 110 are acoustically coupled through the handset to receivers in telecommunications network 115.

Capture device 110 can also output encoded data directly, without making a telephone call. This is useful in conjunction with a point of sale system or the like, which includes a docking station or other interface to which the capture device may be connected, or an IR receiving device or a device responding to DTMF.

If an outgoing telephone call is initiated by capture device 110, the call can illustratively be routed through telecommunications network 115 directly to an agent terminal 120, or to an interactive service platform 130 to which is connected another agent terminal 121. When a connection is completed to platform 130, the call may be routed by a switch matrix 131 to a voice response unit 132 that operates under the control of a processor 134. Information included in the captured encoded data can be provided to the attendants, or processor 134 can perform a look-up and retrieval operation in database 131, using encoded data as a key, in order to effectuate a desired transaction.

For certain transactions, information connected with a transaction may also be transmitted from service platform 130 to capture device 110, either for display to a user, storage for later use, or output to a point of sale system or device. This information may, for example, be confirmation information, indicating that a transaction has been effected, or details regarding a just completed transaction, such as ticket information relating to a travel reservation.

Referring now to Fig. 2, there is shown a block diagram illustrating in more detail the components in one embodiment of capture device 110 of Fig. 1. If the encoded non-perceptible data is inserted in the video portion of a television signal, the images displayed on visual display area 105 are captured by optical lens 117 and an associated photo-detector 203, which is arranged to supply an electrical signal to filter/receiver 215 representing the image. On the other hand, if the encoded non-perceptible data is inserted in the audio portion of a television signal, the output from speaker 106 is captured by a microphone 211 and an associated amplifier 213, which is arranged to supply an electrical

signal to filter/receiver 215 representing the sound energy. In either event, the encoded non-perceptible data is decoded in filter/receiver 215 in a manner consistent with the manner in which the original data was encoded. Thus, filter/receiver 215 can be arranged to perform the same functionality as the elements illustrated in Fig. 4 of the above referenced Broughton et al. patent, or, alternatively, the operation of filter/receiver 215 can be as described in conjunction with Figs. 4 or 7 in copending application of T.Sizer. In each instance, it is noted that capture device 110 receives and recovers encoded data by "watching" or "listening to" the output of television 101 (or another similar display device), and that the capture device 110 is not connected to television 101 or the other display device by a cable or wires.

The output of filter/receiver 215, representing the data captured by capture device 110, is applied to a microprocessor 220, which is arranged to perform various data processing and control functions in coordination with programs stored in an associated memory 221 as well as inputs received from a user of capture device 110. Generally speaking, capture device 110 may operate in an active or a passive mode. In the active mode, capture device 110 responds only to user initiated capture commands. In the passive mode, capture device 110 captures all of the data sent to it while in that mode. In either mode, captured data may be routed by microprocessor to memory 221 and stored for use at a later time, as determined by the user. The captured data may also be displayed on a display 225, such as a liquid crystal display, so that a user will be aware of exactly what information was captured.

The control programs contained in memory 221 can implement numerous functions, which, broadly speaking, can be categorized as (a) functions relating to data capture, such as SAVE and AUTOSAVE functions, (b) functions relating to output of already captured data, such as DIAL and SEND DATA functions, (c) functions relating to memory manipulation, such as the RECALL and DELETE functions. The above enumerated functions are initiated when respective buttons 241 - 246 are activated, and the activation signal output from a button is applied to microprocessor 220 via a button interface 240. Each of the functions is discussed below.

When the SAVE function is initiated by activation of button 241, capture device 110 is in the active mode, and the encoded data contained in the current audio or video output of television 101 is captured. This is accomplished, for example, by activating optical lens 117 and photo detector 203, or microphone 211 and amplifier 213, for a relatively brief period of time, typically on the order of several seconds, so that encoded data associated with the current program being displayed on display area 105 or played through the loudspeaker 106 is processed by filter/receiver 215 and stored in memory 221.

A visual or auditory cue may be contained in the video or audio program, to indicate to a user of a capture device that there is data to be captured. When the SAVE function is activated, microprocessor 220 may be arranged to control display 225 so as to indicate the current status, e.g., that the capture device is in the process of receiving and capturing data. When the data has been captured, microprocessor 220 may be arranged to control display 225 so as to actually display some or all of the data, so that the user is now aware of information that had theretofore been subliminal and indiscernible. The display can also indicate that the device is "aimed" correctly.

When the AUTOSAVE function is initiated by activation of button 244, capture device 110 is in the passive mode. In this mode, capture device 110 captures a series of encoded data that may be contained in each of a series of programs that can be viewed/heard on television 101. This is accomplished, for example, by activating optical lens 117 and photo detector 203, or microphone 211 and amplifier 213, for a relatively long period of time, typically on the order of several minutes or hours. Encoded data captured from the various programs being displayed on display area 105 or played through loudspeaker 106 over a long period of time are processed by filter/receiver 215 and stored in memory 221. As with the SAVE function, when the AUTOSAVE function is activated, microprocessor 220 may be arranged to control display 225 so as to indicate the current status, e.g., that the capture device is in the process of receiving and capturing data.

When a user of capture device 110 desires to use any of the data stored in memory 221, including data stored as a result of the AUTOSAVE function, the contents of memory 221 may be retrieved and displayed on display 225 by initiating the RECALL function upon activating button 245. This permits a user to be aware of exactly what information was previously captured and stored. Through this function, the user will be able to selectively peruse or scroll through the stored data, so as to retain or use selected portions thereof. Activation of button 246 initiates the DELETE function, whereby portions of the data stored in memory 221 are selectively erased. In order to conserve and thereby "recycle" to storage capacity of memory 221, microprocessor 220 may also be arranged to manage the contents in memory 221, so that the oldest information stored therein could be cycled out and deleted as new information is captured and stored.

Turning now to consideration of the use of already captured data, it is an important functionality of capture device 110 to permit such data to be output upon a command from a user. Such data, when output, can be used to (a) make a telephone call, and, when the call is answered, to provide information to a live or automated attendant that receives the call, or (b) initiate a transaction, such as by interacting with a special

purpose terminal or kiosk arranged to receive the stored data, or a device such as a VCR Plus or a stereo. In accordance with the arrangement shown in Fig. 2, data output via a telephone call can be initiated in several ways.

5 First, captured data can be routed by microprocessor 220 from memory 221 to a modem 246 and then to a base station interface 250, so that the information can be communicated to telephone base 109 of Fig. 1. This in turn allows a conventional telephone call to be originated from telephone base 109.

10 Second, captured data can be routed through modem 246 to a wire interface 253, which allows capture device 110 to be physically connected to a terminal or docking station for information off loading.

15 Third, captured data can be routed to a DTMF transceiver 247, which includes a tone generator arranged to output DTMF tones. These tones can be directly connected to a telephone line 112 via a standard connection such as RJ11 jack 114. Alternatively, capture device 110 can be placed in juxtaposition with the microphone in a telephone handset, and the audible tones can be applied and used much like an audible frequency autodialer.

Fourth, captured data can be routed through modem 246 to a cellular telephone 252, which can initiate a cellular call. When a cellular connection is completed, the captured data can be output in encoded form or as audible tones.

20 For each of the arrangements just described, a telephone call may be originated using the DIAL function. This function is initiated by activation of button 242. With this function, dialing or routing information, which is part of the data captured by capture device 110 and now stored in memory 221, is retrieved. This information is then further processed, so that a telephone call can be initiated. In some instances, a call is originated
25 by application of stored data to DTMF transceiver 247, so that audible tones can be output. In other instances, a data call can be initiated by appropriately formatting stored data. In yet other instances, such as when a cellular call is dialed, stored dialing information may be applied to an outgoing number register. The exact manner in which information is output from capture device 110 can vary, in accordance with several
30 embodiments of the present invention.

While the DIAL function is used to output certain captured information needed to initiate a telephone call (or other data output function), the SEND DATA function, initiated by activation of button 243, is used to output other portions of the captured data stored in memory 221, pertaining, for example, to a transaction that the user desires to
35 make. This additional data is retrieved from memory 221 and appropriately transmitted, depending upon the manner and type of telephone call involved. Thus, data may be output

either via base station interface 250 to telephone base 109, or via RJ 11 jack 114 onto telephone line 112, or via cellular phone 252 to MTSO 140. Note that if output occurs directly, without a telephone call, the SEND DATA function may cause information from memory 221 to be output via wire interface 253. During the SEND DATA function, the information being output may also be displayed on display 225. This allows a person using the capture device to identify the information that was captured, and use the information in an actual transaction.

It is to be noted here that capture device 110 of Fig. 2 may optionally include an automatic speech recognition circuit 245, an infrared (IR) transmitter 235, a handset 230 and a keypad 247. The purpose of IR transmitter 235 is to allow captured data to be output directly to a device such as a point of sale system or a VCR or the like, via infrared transmission. The purpose of speech recognition circuit 245 is to convert captured data to spoken phrases, which can be played to a user or to an attendant after a telephone call is initiated. The purpose of handset 230 and keypad 247 is to allow capture device 110, in addition to being used in accordance with the present invention, to be used to complete conventional dialed telephone calls.

In one application of the present invention, a televised advertisement for a product includes additional ordering or "coupon" information embedded in a subliminal visual pattern within the video image displayed on visual display area 105. The coupon information describes the item(s) offered for sale, the regular price, the coupon value, and contains additional information needed for ordering. This embedded information is transmitted between television 101 and capture device 110 at a rate such as 60 bits per second, that is sufficient such that the necessary information can be transmitted in a very brief period of time. In the application just described, the embedded product information, dialing number, coupon information and necessary checkbits together comprise approximately 2,000 bits of information, so that between three and four seconds would be required for transmission. Once the coupon information is stored in capture device 110, the user of the capture device can supplement the coupon information with user entered data which can be entered using keypad 247. This supplemental information may include credit card or other billing information pertaining to the user, as an example.

As shown in Fig. 3, the information represented by the encoded data can be organized in several fields. Using the coupon application as an example, a first field 301 contains a telephone number which may be used to originate a telephone call in order to order the product to which the coupon applies. Illustratively, this will be a toll-free or "800" number. Other information associated with the coupon can include a product description in field 303, an expiration date in field 305, the time that the advertisement was

televised in field 307, the number of the television channel running the ad in field 309, and a serial number for the ad in field 311, identifying either or both the particular ad and its sequence in an ad campaign. It is to be noted that various other information can also be included in the information illustrated in Fig. 3, such as keywords or attributes describing the received encoded data, as well as information indicating that a product is available in particular colors or sizes. The keywords would be useful in retrieving from memory 221, information relating to specific products or advertisers.

The process by which information embedded in a subliminal visual or audible message is captured and used is illustrated in flow diagram form in Fig. 4. As indicated previously, two general modes of operation are contemplated, namely a "passive" mode and an "active" mode, both of which follow a "start" step 401.

In the passive mode, a user desires to operate capture device 110 in an unattended manner, and to capture all of the encoded data that may be subliminally displayed on a display device 105 or output from speaker 106 over a relatively long period of time, typically several minutes or hours, until the user, at some later time, desires to discontinue or terminate the capture. This mode is initiated using AUTOSAVE functionality, by activating button 244. When this is done, a positive response is obtained in step 502, so that data capture, storage and display, all as described below in connection with step 507, occur. While in the passive mode, capture is terminated by subsequent activation of the same button 224.

In the active mode, a user operates capture device 110 in real time, typically while viewing a video display or listening to an audio presentation. During the display or presentation, the user sees or hears a corresponding televised advertisement or other indication that imperceptible information is available for capture. The user may, at this time, be instructed to activate SAVE button 241, or the user may know, from previous experience, how to use the device. When button 241 is activated, a positive result occurs in step 503, thereby capturing the imperceptible encoded data, displaying all or a portion of the data on display 225, and storing same in memory 221, all in step 507. Until the SAVE button is activated, capture device 110 may be in a "wait state" 505.

The user of capture device 110 determines that the appropriate data has been captured by reviewing the information seen in display 225. After the captured data has been reviewed and determined to be correct, activation of the DIAL button 242 on the portable capture device 110 in step 509 initiates step 513, by which stored dialing and/or routing information, illustratively in field 401 of Fig. 4, is recalled from memory 221. A call is then originated launched, such by transmitting the dialing information from memory 221 through base station interface 250 to base station 109 and thence to telephone line

111 and telecommunications network 115 to interactive service platform 130. The call may be a local or long distance call, made using a "plain old telephone service" (POTS) line; alternatively, a toll-free call may be launched using an 800 number. Desirably, automatic number identification (ANI), caller ID, and other features available in the telecommunications network may be used to provide additional information to the called party, in addition to the captured data that is transmitted in succeeding steps in the process. Until the DIAL button is activated, capture device 110 may be in a "wait state" 511.

After the call has been originated, a determination is made in step 515 that the call has been answered and that the SEND DATA button 243 has been pushed. (Until the SEND DATA button is activated, capture device 110 may be in a "wait state" 517.) When a positive result occurs in step 515, information contained in fields 403-411 is transmitted to the called destination in step 519. As stated previously, from the point of view of the called party, the information received includes details concerning the advertised product, the identity of the caller, and other information associated with the item that was initially displayed or mentioned on the television program. Advantageously, the advertiser will know more about their customer than ever before. This is because the advertiser will be able to determine from the transmitted information which advertisement drew the business, how long it took the caller to respond to the ad, and the geographic location of the callers, based upon ANI or caller ID. It will be easy to tell which ads in a campaign are most successful.

In accordance with one optional arrangement of the present invention, when data is captured and stored in step 507, the newly collected data is compared with previously stored data. When a match is found, any duplicate data is dropped. In addition, the information in various fields is examined, to assure that the data captured is in the appropriate format. If an error is detected in any data, the information may be deleted, and "new" data collected. This is accomplished by repeating capture step 507 several times.

In another application of the present invention, an interactive television capability is provided in connection with a game show or television drama. For a game show, an audience would be asked to vote on various aspects of the game. This could include questions such as which person should go on a date with the contestant, or which singer is the best? The audience would be instructed to press the "SAVE" button on their capture device at the appropriate time specified for their choice. The viewers vote would then be cast by depressing the DIAL button, communicating with the game show host, and then transmitting information indicating the vote by depressing the SEND DATA button.

Alternately, one number could be transmitted and an automated interactive voice platform such as the InfoWorx™ platform available from AT&T could offer options to the caller. These calls could be toll free calls, or, alternatively, billed to the caller.

In yet another application of the present invention, a video on demand capability can be provided. A viewer sees a video he or she would like to see advertised on a previewing network. An instruction to press the DIAL button on the capture device is made on the previewing channel to indicate to the viewer that he or she can press the button to order a particular video. The call would be placed to a voice response system used to reserve the video on demand. Information about which video the caller wanted to see is sent over the phone lines once the call is connected. The caller would merely have to acknowledge the order and select a time slot.

The present invention can also be employed in the context of programming of a VCR, particularly where the user already has the capabilities provided by VCR Plus, a product that is commercially available. In this embodiment, a code sequence associated with and representing a particular television show constitutes the information included in a televised advertisement. When the ad is viewed, the viewer can press the SAVE button and send the sequences to the VCR Plus using IR transmitter 235.

While the portability of capture device 110 is advantageous, it is to be noted that in some arrangements, the functions of capture device 110 and telephone base 109 may be combined in a single stationary unit, which might resemble a cordless telephone base station. In this event, the functionality of capture device 110 would be included in the stationary unit, and that unit would be arranged, in the manner previously described, to collect information from the visual display area 105 and to provide storage of the collected information. In this arrangement, the stationary unit could also be adapted to utilize input devices such as optical character recognition (OCR) or scanners that would provide an additional method of inputting telephone numbers and coupon and/or product information. The hand piece of this stationary unit would be used to place a call and send the data.

The present invention is not limited to live televised programs, but can also be operated in conjunction with stored video programs played from a VCR. In this arrangement, advertisements and other encoded information is included in videos at the time they are recorded or at the time they are mastered and put onto video cassettes. A viewer watching a video with such an ad can respond immediately to reserve another video, purchase one of the items advertised, or order catalogs automatically. When a program containing subliminally encoded data is viewed, the viewer simply presses the DIAL button, launching a telephone call, and then presses the SEND DATA button,

sending captured data, such as product information, to an agent, who can verify the order using the additional information that was captured or stored in the device.

The portability of the present invention can be used to advantage in implementing what can, in effect, be called a "Roaming Bulletin Board". A user can be attending a conference or traveling through the airport where kiosks or bulletin boards are set up. In the case of a conference, an attendee would walk through the conference viewing the displays. When the attendee sees a display of interest, he or she points the capture device towards the display, and captures the non-discernible encoded data from either the displayed image or the sound output. Later, the user launches a telephone call to the telephone number specified and included in the captured data, and sends out coupon information that is also part of the captured data.

It is further to be noted that the present invention can be used in the context of automobiles and mobile telephones. When a capture device in accordance with the invention is placed in a car, it can receive and capture non-discernible encoded data contained in the audio output of the car radio. The captured data can include a toll free or conventional telephone number for originating a mobile cellular telephone call from the car. The call may be placed to an interactive service platform, and additional captured data, such as coupon or similar information, can then be used to effectuate a transaction.

Various modifications and adaptations of the present invention will be apparent to those skilled in the art. For example, the functions provided by the present invention may be combined with those used in a personal digital assistant (PDA) or a laptop computer. If desired, a simultaneous voice and data (SVD) modem of the type available now from AT&T could be provided in capture device 110 to allow communication both by voice and data transfer, at the same time. Various functions can also be added to the processes and applications described. For example, telephone base 109 may be programmed to dial a number or series of numbers at specific times, when certain amounts of information or data have been collected, or based upon some criteria. Capture device 110 could then send collected information "in bulk" to interactive service platform 130. For this purpose, modem 246 could be used, so as to send the information more efficiently.

What is claimed is:

1. Apparatus for initiating a transaction, comprising
means arranged for wireless capture of data directly from an audio/visual display,
said data being indiscernible by a viewer or listener, and
5 means arranged to transfer at least portions of said data to a separate transaction
processor to initiate said transaction.
2. The invention defined in claim 1 wherein said data includes dialing information for
originating a telephone call, and wherein said transfer means includes means for initiating
said telephone call using said dialing information.
- 10 3. The invention defined in claim 1 wherein said apparatus further includes
means responsive to said capture means for storing said data, and
wherein said transfer means includes means for coupling information from said
storing means directly to a separate transaction processor.
4. The invention defined in claim 3 wherein said data further includes descriptive
15 information associated with said audio/visual display.
5. The invention defined in claim 1 wherein said capture means is in a portable capture
device and said transfer means is in a base station, and wherein said apparatus further
includes means for transferring information from said portable capture device to said base
station.
- 20 6. The invention defined in claim 1 wherein said audio/visual display includes non-
perceptible encoded data, and wherein said capture means is arranged to receive and
decode said encoded data.
7. The invention defined in claim 6 wherein said non-perceptible encoded data includes an
amplitude shift keyed (ASK) or frequency shift keyed (FSK) carrier signal added to a
25 television signal, and wherein capture is effected by detecting and decoding said carrier
signal.
8. The invention defined in claim 1 wherein said apparatus further includes means for
displaying said data to a user.

9. The invention defined in claim 8 wherein said captured data includes other associated information, such as product or coupon information, that is related to the dialing and display information, and that constitutes a payload to be communicated to a remote location.

5 10. The invention defined in claim 1 wherein said portable capture device includes a light sensitive lens assembly for receiving encoded data embedded in the chrominance and luminance information associated with a video image.

11. The invention defined in claim 1 further including means for processing said captured information to extract information needed to dial a telephone number.

10 12. The invention defined in claim 1 wherein said capture device includes a liquid crystal display (LCD), and wherein said system further includes means for processing said captured information to extract information for display on said LCD display.

13. A system for capturing data comprising
means for wireless capture of indiscernible data embedded in an audio/video

15 display; and
means for outputting at least portions of said captured indiscernible data to a remote device via a telephone call.

14. Apparatus for initiating a transaction relating to a program appearing on a television display, said apparatus comprising

20 means arranged for wireless capture of data directly from said television display, said data being indiscernible to a viewer of said television display;

means responsive to said captured data for obtaining a telephone number, said telephone number being associated with a remote location arranged to perform transactions associated with said program appearing on said television display;

25 means for initiating a telephone call using said telephone number; and
means for transmitting to said remote location, during said telephone call, additional information contained in said captured data, said additional information also pertaining to said program.

15. A system for responding to a televised advertisement, comprising
means for embedding non-discernible information in said advertisement, said
information including (a) a telephone number for a remote processor arranged to process
orders for the items displayed in said advertisement, and (b) other information relating to
5 said items displayed in said advertisement;

means arranged for wireless capture of said non-discernible information directly
from said televised advertisement; and

means responsive to said captured information for (a) placing a telephone call
using said telephone number and (b) transmitting said other information to said remote
10 processor via said telephone call.

16. A method for initiating a transaction, comprising the steps of
capturing data directly from an audio/visual display, said data being indiscernible
by a viewer or listener, and

transferring at least portions of said data to a separate transaction processor to
15 initiate said transaction.

17. The method defined in claim 16 wherein said data includes dialing information for
originating a telephone call, and wherein said transferring step includes initiating said
telephone call using said dialing information.

18. The method defined in claim 16 wherein said method further includes
20 storing said data responsive to said capturing step, and
coupling information stored in said storing step directly to a separate transaction
processor.

19. The method defined in claim 18 wherein said data further includes descriptive
information associated with said audio/visual display.

20. A method for capturing data comprising
capturing, using wireless capture, indiscernible data embedded in an audio/video
display; and
outputting at least portions of said captured indiscernible data to a remote device
via a telephone call.

21. A method for initiating a transaction relating to a program appearing on a television display, said method comprising steps of

using wireless capture to capture data directly from said television display, said data being indiscernible to a viewer of said television display;

5 responsive to said captured data, obtaining a telephone number, said telephone number being associated with a remote location arranged to perform transactions associated with said program appearing on said television display;

initiating a telephone call using said telephone number; and

transmitting to said remote location, during said telephone call, additional

10 information contained in said captured data, said additional information also pertaining to said program.

22. A method for responding to a televised advertisement, comprising the steps of

embedding non-discernible information in said advertisement, said information

15 including (a) a telephone number for a remote processor arranged to process orders for the items displayed in said advertisement, and (b) other information relating to said items displayed in said advertisement;

capturing, using wireless capture, said non-discernible information directly from said televised advertisement; and

responsive to said captured information, (a) placing a telephone call using said

20 telephone number and (b) transmitting said other information to said remote processor via said telephone call.

FIG. 1

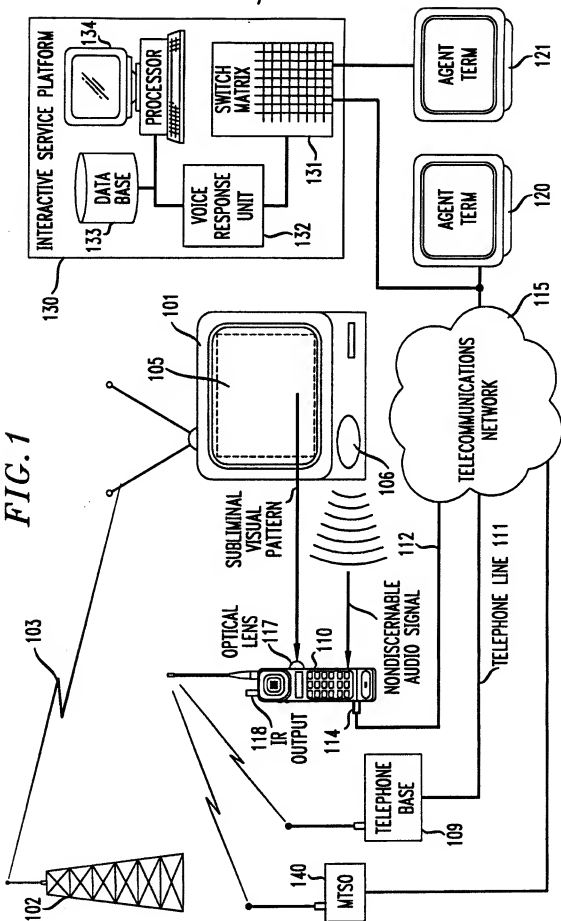


FIG. 2

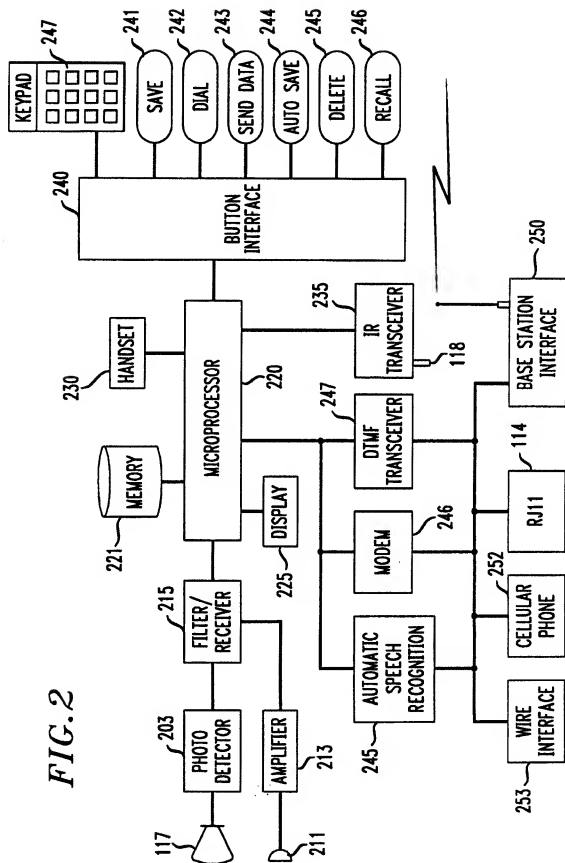


FIG. 3

301	303	305	307	309	311
800 #	PRODUCT DESCRIPTION	EDIT	TIME	CHANNEL #	SERIAL #

FIG. 4

